

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

SURFACE DRAINAGE, FIELD DITCH

(Ft.)

CODE 607

DEFINITION

A graded ditch for collecting excess water in a field.

- Have soils which can support the planned crop or crops after the planned drainage system is installed

PURPOSE

Collect or intercept:

- Excess surface water, such as sheet flow, from natural and graded land surfaces or channel flow from furrows and carry it to an outlet
- Excess subsurface water and carry it to an outlet

CRITERIA

Drainage field ditches shall be planned as integral parts of a drainage system for the field served and shall collect and intercept water and carry it to an outlet with continuity and without ponding.

All drainage practices shall be installed in accordance with Iowa drainage laws.

Investigations. The design and installation shall be based on surveys and investigations sufficiently detailed to ensure successful implementation of this practice.

CONDITIONS WHERE PRACTICE APPLIES

Applicable sites are flat or nearly flat and:

- Have soils that are slowly permeable (low permeability) or that are shallow over barriers such as rock or clay, which hold or prevent ready percolation of water to a deep stratum
- Have surface depressions or barriers that trap rainfall
- Have insufficient land slope for ready movement of runoff across the surface
- Receive excess runoff or seepage from uplands
- Require the removal of excess irrigation water
- Require control of the water table
- Have adequate outlets available for disposal of drainage water by gravity flow or pumping

Location. Ditches shall be established, insofar as topography and property boundaries permit, in straight or nearly straight courses. Random alignment may be used to follow depressions and isolated wet areas of irregular or undulating topography. Excessive cuts and the creation of small irregular fields shall be avoided.

On extensive areas of uniform topography, collection or interception ditches shall be installed as required for effective drainage.

Design. The required capacity of a field ditch will be determined in accordance with criteria contained in the Iowa Drainage Guide.

The size, depth, side slopes, and cross section area shall meet criteria contained in the Iowa Drainage Guide and:

- Be adequate to provide the required drainage for the site
- Permit free entry of water from adjacent land surfaces without causing excessive erosion

- Provide effective disposal or reuse of excess irrigation water (if applicable)
- Conduct flow without causing excessive erosion. Maximum allowable velocities are shown in the Iowa Drainage Guide, Table 5-1
- Provide stable side slopes based on soil characteristics. Recommended side slopes for field ditches are shown in the Iowa Drainage Guide, Table 4-1
- Permit crossing by field equipment if feasible
- Permit construction and maintenance with available equipment

CONSIDERATIONS

When planning this practice, the following items should be considered where applicable:

- Potential impacts on downstream flows or aquifers that would affect other water uses or users
- Potential water quality impacts for soluble pollutants, sediments, and sediment-attached pollutants
- Potential for uncovering or redistributing toxic materials
- Impacts on cultural resources
- Effects on wetlands or water-related wildlife habitats
- Effects of water level control on soil water, downstream water temperature, or salinity of soils
- The need for riparian buffers, filter strips, and fencing
- Effects on water budget components, especially the relationships between runoff and infiltration

PLANS AND SPECIFICATIONS

Plans and specifications for constructing drainage field ditches shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

The following list of Construction Specifications is intended as a guide to selecting the appropriate specifications for each specific project. The list includes most, but may not contain all, of the specifications needed for a specific project:

- IA-1 Site Preparation
- IA-5 Pollution Control
- IA-6 Seeding and Mulching for Protective Cover
- IA-21 Excavation

OPERATION AND MAINTENANCE

A site-specific operation and maintenance plan shall be provided to and reviewed with the landowner(s) before the practice is installed. The plan shall adequately guide the landowner(s) in the routine maintenance and operational needs of the ditch(es). The plan shall also include guidance on periodic inspections and post-storm inspections to detect and minimize damage to the ditch(es).

REFERENCES

USDA-NRCS, National Engineering Handbook (NEH), Part 650, Engineering Field Handbook (EFH), Chapter 14

Iowa Drainage Guide, Iowa State University, Special Report 13